Attorney Docket No. 2005P00312WOUS

UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Guenter Ries
Application Number:	10/591,086
Filing Date:	08/29/2006
Group Art Unit:	2832
Examiner:	Ramon M. Barrera
Title:	LINEAR DRIVE DEVICE WITH A MAGNET YOKE BODY AND A PERMANENT MAGNETIC ARMATURE

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Pursuant to 37 CFR 1.192, Appellant hereby files an appeal brief in the above-identified application.

Pursuant to 37 C.F.R. § 41.34 and M.P.E.P. § 1207.04, the previously paid fees set forth in 37 CFR 1.17(f) for filing the Appeal Brief on May 4, 2009, should be applied to this new Appeal Brief.

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(1) REAL PARTY IN INTEREST

The real party in interest is BSH Bosch und Siemens Hausgeräte GmbH.

(2) RELATED APPEALS AND INTERFERENCES

There are no appeals or interferences that will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) STATUS OF CLAIMS

Claims 14-31 are pending in the present application. Claims 1-13 were canceled. Claims 22-31 are allowed and claim 17 would be allowable if rewritten in independent form. Claims 14-16 and 18-21 stand finally rejected. The final rejections of claims 14-16 and 18-21 are being appealed. Claims 14 and 22 are independent.

(4) STATUS OF AMENDMENTS

There are no outstanding Amendments.

A final Office Action dated August 31, 2009, reopened prosecution after the filing of an Appeal Brief on May 4, 2009. Appellant reinstated the Appeal by filing a new Notice of Appeal in response to the final Office Action of August 31, 2009.

(5) SUMMARY OF CLAIMED SUBJECT MATTER

An exemplary embodiment of the present invention, as recited by, for example, independent claim 14, is directed to a linear drive device (2) ([001], page 1, line 6; [007], page 2, lines 13-14; [009], page 2, lines 23-25; [010], page 2, lines 27-29; [011], page 3, lines 7-11; [015], page 4, lies 1-2; [016], page 4, line 19; [024], page 4, lines 30-33, and page 5, lines 1-4; [0278], page 6, lines 1-5; [037], page 6, lines 24-25; [038], page 7, lines 6-8) that includes

an excitation winding (3) producing a variable magnetic field ([001], page 1, line 7; [009], page 2, lines 23-25; [010], page 2, lines 31-32; [014], page 3, lines 24-26; [024], page 5, lines 2-3, 12-14),

a magnetic-flux-guiding main yoke body (5, 16) accommodating the excitation winding (3) and having multiple limbs (5a-5c, 16a-16c) including a central limb ([008], page 2, lines 16-21; [010], page 2, lines 30-31; [011], page 3, lines 7-11; [014], page 3, lines 20-23; [020], page 4, line 23; [024], page 5, lines 2-4; [037], page 6, lines 25-26 and 29-31; [038], page 7, lines 6-7),

a winding-free counter-yoke body (6) disposed opposite to the main yoke body (5) ([001], page 1, lines 10-11; [011], page 3, lines 7-11; [015], page 4, lines 3-5; [019], page 4, line 21; [024], page 5, lines 4-11; [026], page 5, lines 28-30; [037], page 6, lines 25-26);

an axial gap (7) formed between the main yoke body (5, 16) and the counter-yoke body (6) ([001], page 1, lines 11-12; [024], page 5, lines 8-12; [037], page 6, lines 26-29),

an armature body (8) provided with at least two permanent magnetic magnet parts (9a, 9b) arranged axially one behind the other and having opposite magnetization (M) ([001], page

1, lines 15-16), each of the at least two magnet parts (9a, 9b) having a magnet axial extension dimension (d_{pm}), the armature body (8) being set in axially oscillating motion by the magnetic field of the excitation winding (3) in the axial gap (7) ([001], page 1, lines 17-18); [011], page 3, lines 9-11; [015], page 4, lines 3-5; [024], page 5, lines 8-18; 027], page 6, lines 2-5; [037], page 6, lines 26-29 and 31-32, and page 7, lines 1-4); [024], page 5, lines 8-18),

and

each of the multiple limbs (5a-5c, 16a-16c) of the main yoke body (5, 16) having a pole surface (F_p) facing the armature body (8) and defining a pole surface width dimension (b_j) extending across the axial width of the pole surface (F_p), the pole surface width dimension (b_j) of each of the multiple limbs (5a-5c, 16a-16c) being substantially the same, each of the multiple limbs (5a-5c, 16a-16c) being spaced apart from one another axially by a pole surface spacing dimension (b_w), the magnet axial extension dimension (b_{pm}) of each magnet part (9a, 9b) being approximately equal to the sum of the pole surface width dimension (b_j) and the pole surface spacing dimension (b_w) ([008], page 2, lines 17-21; [011], page 3, lines 9-11; [014], page 3, lines 26-30; [015], page 4, lines 6-8; ([025], page 5, lines 20-26); [027], page 6, lines 4-8; [037], page 6, lines 26-32, and page 7, lines 1-4).

Conventional yokes for linear drive devices have been kinked on a side facing the armature. Such conventional yokes are expensive to produce and it is difficult to arrange the windings in the windows of such conventional yokes.

In stark contrast, an exemplary embodiment of the present invention includes a pole surface width dimension of each of the multiple limbs being substantially the same, each of

the multiple limbs being spaced apart from one another axially by a pole surface spacing dimension, the magnet axial extension dimension of each magnet part being approximately equal to the sum of the pole surface width dimension and the pole surface spacing dimension.

In this manner, the yoke structure is greatly simplified.

Claim 15 depends from claim 14 and is directed to a drive device (2) further including winding windows (4) holding the excitation winding (3) between the limbs (16a-16c) and having a window axial extension dimension (d_w) extending between the adjacent limbs (16a-16c), and pole shoe bodies (17a-17b) disposed on the pole surfaces (Fp) of the limbs (16a-16c) of the main yoke body (16) and having a pole axial extension dimension (d_j) being greater than the window axial extension dimension (d_w) ([027], page 6, lines 1-8).

Claim 16 depends from claim 15 and is directed to a drive device (2) wherein the pole shoe bodies (17a-17b) are placed on the respective limbs (16a-16c) ([027], page 6, lines 1-8).

Claim 18 depends from claim 14 and is directed to a drive device (2) wherein the counter-yoke body (6) is embodied as plate-shaped ([026], page 5, lines 28-30).

Claim 19 depends from claim 14 and is directed to a drive device (2) wherein the pole surface width dimension (b_j) of at least one pole surface (F_p) is substantially the same as the stroke distance (H) of the armature body (8) during the oscillating movement ([015], page 4, lies 6-8; [024], page 5, lines 16-18; ([025], page 5, lines 20-26); [027], page 6, lines 1-8; [037], page 6, lines 29-32, and page 7, liens 1-6).

Claim 20 depends from claim 14 and is directed to a drive device (2) wherein the magnet parts (9a, 9b) are embodied as plate-shaped ([024], page 5, line 10).

Claim 21 depends from claim 14 and is directed to a drive device (2) wherein the armature body (8) is rigidly connected to a pump piston (11) of a compressor (V) ([024], page 5, lines 14-18).

As explained above, conventional yokes for linear drive devices have been kinked on a side facing the armature. Such conventional yokes are expensive to produce and it is difficult to arrange the windings in the windows of such conventional yokes.

In stark contrast, an exemplary embodiment of the present invention includes a pole surface width dimension of each of the multiple limbs being substantially the same, each of the multiple limbs being spaced apart from one another axially by a pole surface spacing dimension, the magnet axial extension dimension of each magnet part being approximately equal to the sum of the pole surface width dimension and the pole surface spacing dimension.

In this manner, the yoke structure is greatly simplified.

(6) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

a. Whether claims 14, 18, and 20 are unpatentable under 35 U.S.C. § 102(b) over the JP2000-253640 reference,

b. Whether claims 14 and 18-20 are unpatentable under 35 U.S.C. § 102(b) over the JP2000-224829 reference,

c. Whether claims 15 and 16 are unpatentable under 35 U.S.C. § 103(a) over the JP2000-253640 reference in view of the Huth reference (EP 0915553), and

d. Whether claim 21 is unpatentable under 35 U.S.C. § 103(a) over the JP2000-253640 reference in view of the McGill et al. reference (US 2003/017384).

(7) ARGUMENT

a. Claims 14, 18, and 20 are patentable under 35 U.S.C. § 102(b) over the JP2000-253640 reference

The Office Action rejects claims 14, 18, and 20 under 35 U.S.C. § 102(b) as allegedly being anticipated by the JP2000-253640 reference. Appellant respectfully traverses this rejection.

Independent Claim 14

The JP2000-253640 reference does not teach or suggest the features of the claimed invention including a pole surface width dimension of each of the multiple limbs being substantially the same, each of the multiple limbs being spaced apart from one another axially by a pole surface spacing dimension, the magnet axial extension dimension of each magnet part being approximately equal to the sum of the pole surface width dimension and the pole surface spacing dimension as recited by independent claim 14. As explained above, these features are important for simplifying the yoke structure and thereby making it less expensive to manufacture and easier to install the windings.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. [...] The identical invention must be shown in as complete detail as is contained in the ... claim." M.P.E.P. § 2131.

First, the JP2000-253640 reference (based on an automated English language translation obtained from the Japan Patent Office web site) is completely silent with respect to a pole surface width dimension of each of the alleged multiple limbs 2a being substantially the same, as recited in claim 14. Indeed, the Office Action does not allege or mention that the JP2000-253640 reference discloses this feature.

Moreover, the JP2000-253640 reference does not state that the drawings are drawn to scale. When the reference does not disclose that the drawings are to scale and is silent as to dimensions, arguments based on measurement of the drawing features are of little value. See, e.g., M.P.E.P. § 2125. Even assuming in arguendo that Figure 7 is drawn to scale, the width of the central limb 2a clearly is larger than the width of the outer limbs.

Thus, the JP2000-253640 reference clearly fails to disclose or suggest a pole surface width dimension of each of the multiple limbs being substantially the same, as recited in claim 14.

Second, the JP2000-253640 reference fails to disclose or suggest the magnet axial extension dimension of each magnet part being approximately equal to the sum of the pole surface width dimension and the pole surface spacing dimension, as recited by independent claim 14.

In the Office Action, the rejection fails to establish or mention how the JP2000-253640 reference allegedly discloses these features. The Response to Arguments of the Office Action takes the position that page 2 of Applicants' specification discloses a range of +/- 10% for the sum of the pole surface width dimension and the pole surface spacing dimension, and that the claimed terms "substantially" and "approximately" are relative terms open to broad interpretation. However, neither the Response to Arguments nor the text of the rejection explains how the JP2000-253640 reference metes the claimed features.

The JP2000-253640 reference is completely silent with respect to the magnet axial extension dimension of each magnet part being approximately equal to the sum of the pole surface width dimension and the pole surface spacing dimension, as recited by independent claim 14. Moreover, as explained above, the JP2000-253640 reference does not state that the drawings are drawn to scale. When the reference does not disclose that the drawings are to scale and is silent as to dimensions, arguments based on measurement of the drawing features are of little value. See, e.g., M.P.E.P. § 2125.

Thus, the Office Action fails to establish that the JP2000-253640 reference discloses or suggests the magnet axial extension dimension of each magnet part being approximately equal to the sum of the pole surface width dimension and the pole surface spacing dimension, as recited by independent claim 14.

Appellant respectfully requests reversal of this rejection.

b. Claims 14 and 18-20 are patentable under 35 U.S.C. § 102(b) over the JP2000-224829 reference

The Office Action rejects claims 14 and 18-20 under 35 U.S.C. § 102(b) as allegedly being anticipated by the JP2000-224829 reference. Appellant respectfully traverses this rejection.

Independent Claim 14

The JP2000-224829 reference does not teach or suggest the features of the claimed invention including a pole surface width dimension of each of the multiple limbs being substantially the same, each of the multiple limbs being spaced apart from one another axially by a pole surface spacing dimension, the magnet axial extension dimension of each magnet part being approximately equal to the sum of the pole surface width dimension and the pole surface spacing dimension as recited by independent claim 14. As explained above, these features are important for simplifying the yoke structure and thereby making it less expensive to manufacture and easier to install the windings.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. [...] The identical invention must be shown in as complete detail as is contained in the ... claim." M.P.E.P. § 2131.

First, the JP2000-224829 reference (based on an automated English language translation obtained from the Japan Patent Office web site) is completely silent with respect to a pole surface width dimension of each of the alleged multiple limbs being substantially the same, as recited in claim 14. Indeed, the Office Action does not allege or mention that the JP2000-224829 reference discloses this feature.

Moreover, the JP2000-224829 reference does not state that the drawings are drawn to scale. When the reference does not disclose that the drawings are to scale and is silent as to dimensions, arguments based on measurement of the drawing features are of little value. See, e.g., M.P.E.P. § 2125.

Thus, the JP2000-224829 reference clearly fails to disclose or suggest a pole surface width dimension of each of the multiple limbs being substantially the same, as recited in claim 14.

Second, the JP2000-224829 reference fails to disclose or suggest the magnet axial extension dimension of each magnet part being approximately equal to the sum of the pole surface width dimension and the pole surface spacing dimension, as recited by independent claim 14.

The JP2000-224829 reference is completely silent with respect to the magnet axial extension dimension of each magnet part being approximately equal to the sum of the pole surface width dimension and the pole surface spacing dimension, as recited by independent claim 14. Moreover, as explained above, the JP2000-224829 reference does not state that the drawings are drawn to scale. When the reference does not disclose that the drawings are to

scale and is silent as to dimensions, arguments based on measurement of the drawing features are of little value. See, e.g., M.P.E.P. § 2125.

Thus, the Office Action fails to establish that the JP2000-224829 reference discloses or suggests the magnet axial extension dimension of each magnet part being approximately equal to the sum of the pole surface width dimension and the pole surface spacing dimension, as recited by independent claim 14.

Appellant respectfully requests reversal of this rejection.

Claim 19

The JP2000-224829 reference does not teach or suggest the features of the claimed invention including (1) "a magnetic-flux-guiding main yoke body accommodating the excitation winding and having multiple limbs including a central limb; [...] and each of the multiple limbs of the main yoke body having a pole surface facing the armature body and defining a pole surface width dimension extending across the axial width of the pole surface," as recited in independent claim 14, and (2) "the pole surface width dimension of at least one pole surface is substantially the same as the stroke distance of *the armature body* during the oscillating movement," as recited by claim 19. As explained above, these features are important for simplifying the yoke structure and thereby making it less expensive to manufacture and easier to install the windings.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. [...] The identical

invention must be shown in as complete detail as is contained in the ... claim." M.P.E.P. § 2131.

The Office Action alleges that Figures 4-6 of the JP2000-224829 reference disclose embodiments where the armature stroke is confined by counter yoke legs 16(a, b) to a distance substantially the same as the pole surface width dimension of at least one pole surface.

However, the embodiments of Figures 4-6 clearly do not disclose a magnetic-flux-guiding main yoke body accommodating the excitation winding and having multiple limbs including a central limb; [...] and each of the multiple limbs of the main yoke body having a pole surface facing the armature body as recited in independent claim 14, from which claim 19 depends.

The embodiments of Figures 5 and 6 are closed only at a single end, and therefore, clearly cannot be said to confine the armature stroke, absent an explicit disclosure in the JP2000-224829 reference. The JP2000-224829 reference is silent with respect to confining the armature stroke.

The embodiment of Figure 4 of the JP2000-224829 reference is closed at both ends and is alleged to confine the armature stroke. However, the embodiment of Figure 4 of the JP2000-224829 reference very clearly discloses only a single limb that has a pole surface facing the armature body. Thus, the embodiment of Figure 4 clearly does not disclose a magnetic-flux-guiding main yoke body accommodating the excitation winding and having multiple limbs including a central limb; [...] and each of the multiple limbs of the main yoke

body having a pole surface facing the armature body as recited in independent claim 14, from which claim 19 depends.

Thus, contrary to the assertions in the Office Action, the JP2000-224829 reference clearly fails to anticipate claim 19.

Appellant respectfully requests reversal of this rejection.

c. Claims 15 and 16 are patentable under 35 U.S.C. § 103(a) over the JP2000-253640 reference in view of the Huth reference (EP 0915553)

The Office Action rejects claims 15 and 16 under 35 U.S.C. § 103(a) as allegedly being unpatentable over the JP2000-253640 reference in view of the Huth reference (EP 0915553). Appellant respectfully traverses this rejection.

None of the applied references teaches or suggests the features of the claimed invention including a pole surface width dimension of each of the multiple limbs being substantially the same, each of the multiple limbs being spaced apart from one another axially by a pole surface spacing dimension, the magnet axial extension dimension of each magnet part being approximately equal to the sum of the pole surface width dimension and the pole surface spacing dimension as recited by independent claim 14. This feature is important for simplifying the yoke structure and thereby making it less expensive to manufacture and easier to install the windings.

As explained above, the JP2000-253640 reference does not teach or suggest these features.

The Huth reference does not remedy the deficiencies of the JP2000-253640 reference.

The Office Action appears to suggest that it would have been obvious to one of ordinary skill in the art to provide the pole shoes that are disclosed by the Huth reference to the limbs of the JP2000-253640 reference. The Office Action makes the conclusory statement that such would have been obvious because "these two pole structures were art- recognized equivalents." Appellant respectfully submits that such a conclusory statement is insufficient to provide a prima facie case for obviousness because the Office Action fails to provide an adequate rationale for combining the prior art as required by KSR International v. Teleflex Inc. 82 U.S.P.Q. 2d 1385 (2007).

"[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rationale underpinning to support the legal conclusion of obviousness." (In re Kahn, 441 F.3d 977, 988 (CA Fed. 2006) cited with approval in KSR).

The Office Action fails to provide any articulated reasoning with any rationale underpinning to support a legal conclusion of obviousness. As such, the Office Action fails to present a prima facie case for obviousness.

The Office Action has provided no articulated reasoning to combine the teachings and suggestions of the Huth reference with the JP2000-253640 reference to arrive at the claimed

invention, except from using Appellant's invention as a template through hindsight reconstruction of Appellant's claims.

Moreover, Appellant respectfully submits that one of ordinary skill in the art would not have combined the teachings of the Huth reference with the JP2000-253640 reference. The references are directed to completely different and unrelated problems.

One of ordinary skill in the art who was concerned with the problems with which the Huth reference is concerned with solving would not have referred to the JP2000- 253640 reference, and vice-versa, because the JP2000-253640 reference is concerned with completely different and unrelated problems. Thus, these references would not have been combined.

Appellant respectfully requests reversal of this rejection.

d. Claim 21 is patentable under 35 U.S.C. § 103(a) over the JP2000-253640 reference in view of the McGill et al. reference (US 2003/017384)

The Office Action rejects claim 21 under 35 U.S.C. § 103(a) as allegedly being unpatentable over the JP2000-253640 reference in view of the McGill et al. reference. Appellant respectfully traverses this rejection.

None of the applied references teaches or suggests the features of the claimed invention including a pole surface width dimension of each of the multiple limbs being substantially the same, each of the multiple limbs being spaced apart from one another axially

by a pole surface spacing dimension, the magnet axial extension dimension of each magnet part being approximately equal to the sum of the pole surface width dimension and the pole surface spacing dimension as recited by independent claim 14. This feature is important for simplifying the yoke structure and thereby making it less expensive to manufacture and easier to install the windings.

As explained above, the JP2000-253640 reference does not teach or suggest these features.

The McGill et al. reference does not remedy the deficiencies of the JP2000- 253640 reference.

The Office Action appears to suggest that it would have been obvious to one of ordinary skill in the art to provide the pole shoes that are disclosed by the McGill et al. reference to the limbs of the JP2000-253640 reference. The Office Action makes the conclusory statement that such would have been obvious because "these two pole structures were art-recognized equivalents." Appellant respectfully submits that such a conclusory statement is insufficient to provide a prima facie case for obviousness because the Office Action fails to provide an adequate rationale for combining the prior art as required by KSR International v. Teleflex Inc. 82 U.S.P.Q. 2d 1385 (2007).

"[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rationale underpinning to support the legal conclusion of obviousness." (In re Kahn, 441 F.3d 977, 988 (CA Fed. 2006) cited with approval in KSR).

The Office Action does not provide any articulated reasoning with any rationale underpinning to support a legal conclusion of obviousness. As such, the Office Action fails to present a prima facie case for obviousness.

The Office Action has provided no articulated reasoning to combine the teachings and suggestions of the McGill et al. reference with the JP2000-253640 reference to arrive at the claimed invention, except from using Appellant's invention as a template through hindsight reconstruction of Appellant's claims.

Moreover, Appellant respectfully submits that one of ordinary skill in the art would not have combined the teachings of the McGill et al. reference with the JP2000- 253640 reference. The references are directed to completely different and unrelated problems.

One of ordinary skill in the art who was concerned with the problems with which the McGill et al. reference is concerned with solving would not have referred to the JP2000-253640 reference, and vice-versa, because the JP2000-253640 reference is concerned with completely different and unrelated problems. Thus, these references would not have been combined.

Appellant respectfully requests reversal of this rejection.

(8) CONCLUSION

In view of the foregoing discussion, Appellant respectfully requests reversal of the Examiner's rejections.

Respectfully submitted,

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CLAIMS APPENDIX

14. (Rejected) A linear drive device comprising:

an excitation winding producing a variable magnetic field;

a magnetic-flux-guiding main yoke body accommodating the excitation winding and having multiple limbs including a central limb;

a winding-free counter-yoke body disposed opposite to the main yoke body; an axial gap formed between the main yoke body and the counter-yoke body;

an armature body provided with at least two permanent magnetic magnet parts arranged axially one behind the other and having opposite magnetization, each of the at least two magnet parts having a magnet axial extension dimension, the armature body being set in axially oscillating motion by the magnetic field of the excitation winding in the axial gap; and

each of the multiple limbs of the main yoke body having a pole surface facing the armature body and defining a pole surface width dimension extending across the axial width of the pole surface, the pole surface width dimension of each of the multiple limbs being substantially the same, each of the multiple limbs being spaced apart from one another axially by a pole surface spacing dimension, the magnet axial extension dimension of each magnet part being approximately equal to the sum of the pole surface width dimension and the pole surface spacing dimension.

15. (Rejected) The drive device according to claim 14, further comprising:

winding windows holding the excitation winding between the limbs and having a window axial extension dimension extending between the adjacent limbs; and

pole shoe bodies disposed on the pole surfaces of the limbs of the main yoke body and having a pole axial extension dimension being greater than the window axial extension dimension.

16. (Rejected) The drive device according to claim 15, wherein the pole shoe bodies are placed on the respective limbs.

17. (Allowable)

18. (Rejected) The drive device according to claim 14, wherein the counter-yoke body is embodied as plate-shaped.

19. (Rejected) The drive device according to claim 14, wherein the pole surface width dimension of at least one pole surface is substantially the same as the stroke distance of the armature body during the oscillating movement.

20. (Rejected) The drive device according to claim 14, wherein the magnet parts are embodied as plate-shaped.

21. (Rejected) The drive device according to claim 14, wherein the armature body is rigidly connected to a pump piston of a compressor.

22-31. (Allowed)

EVIDENCE APPENDIX

None

RELATED APPEALS APPENDIX

None